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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/782,752	02/13/2001	William John Gauthier	31223-73767	9688

7590

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Jim D. Wheelington  
ATOFINA Petrochemicals, Inc. / Legal Dept.  
P.O. Box 674412  
Houston, TX 77267-4412

EXAMINER

BROWN, JENNINE M

ART UNIT

PAPER NUMBER

1755

DATE MAILED: 05/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Applicant(s) <span style="float: right;"><i>me</i></span>
	GAUTHIER ET AL.
Application No.	09/782,752
Examiner	Jennine M. Brown
Art Unit	1755

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |                                                                                                                 |                                                                             |
|-----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                     | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                            | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>5, 6</u> . | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Abstract***

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

### ***Claim Objections***

Claims 5, <sup>18,</sup> 19, 20, 22, 23, 24 and 33 are objected to because of the following informalities: Each of the claims uses an inconsistent preamble terminology. The primary claims refer to "a process" and the subsequent dependent claims cited by Examiner refer to "a method". Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-2, 6 and 10-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugimura, et al. (US 6136743).

Sugimura, et al. teach a method of making and using a supported ("fine particulate carrier") metallocene polyolefin catalyst. The process method taught includes the steps of providing particulate catalyst support material (col. 26, l. 28-32; col. 49, l. 63 – col. 50, l. 31) an alumoxane co-catalyst (col. 42, l. 30 – col. 43, l. 4) in hydrocarbon solvent (col. 43, l. 5-27) providing a dispersion with a metallocene having two sterically dissimilar cyclopentadienyl rings coordinated in a stereorigid orientation with a central transition metal to prevent ring rotation (col. 5, l. 38 – col. 6, l. 36; col. 7, l. 50 – col. 8, l. 67; col. 11, l. 64 – col. 17, l. 15; col. 17, l. 25 – col. 20, l. 16) mixing metallocene solvent dispersion and alumoxane (col. 50, l. 33 – col. 51, l. 32) at a temperature of about 10 °C or less then recovering and washing with paraffinic hydrocarbon solvent at a temperature of about 10 °C or less (col. 53, l. 13-20) and dispersing within mineral oil with greater viscosity than paraffinic hydrocarbon solvent (col. 53, l. 21-25; col. 56, l. 27-29). Desired ratios of aluminum to transition metal, organometallic compound to transition metal compound are taught (col. 57, l. 13-35).

Sugimura, et al. do not specifically teach the percentage of impregnation of the internal pore volume of silica but it would have been obvious to one of ordinary skill in the art to

determine at the time of purchase the physical characteristics of the silica to be purchased the specific porosity, size and pore density which would make the adsorption of the alumoxane solution so that a certain percentage of the alumoxane would be retained in the pores.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-31 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-14 of **US 6,239,058**. Although the conflicting claims are not identical, they are not patentably distinct from each other because both patent and instant application claim a process for making a metallocene catalyst which is supported on silica where said support is treated with alumoxane and the metallocene catalyst has two cyclopentadienyl rings, capable of forming fluorenyl rings, said cyclopentadienyl rings can be the same or different, substituted or unsubstituted, bridged or non bridged, so that a different symmetry is assigned to each of the rings. The metal compound may be zirconium or any group IVB metal. Non polar solvent used was toluene.

Instant application claims silica particles are impregnated with alumoxane co-catalyst such that half of the alumoxane are inside the pore structure of the silica particles, that the temperature for impregnation and subsequent washing steps are at 10 °C or less, and that

washed catalyst is dispersed in a viscous mineral oil. Furthermore silica particle size range is between 20-60 microns, weight ratio of alumoxane to silica is 0.6-2.0, weight ratio of metallocene to support ratio is 0.1-6.0 weight percent and pore diameter ranges between 200-400 Å.

It would have been obvious to one of ordinary skill in the art to have modified the catalyst preparation process as described in the patent such that the alumoxane contribution is determined as amount within the pore structure of silica because it is solubilized and would therefore be accessible to the pore structure of silica because the pores inherently would be open to accept liquid and considering the particle size range and weight ratio of alumoxane to silica are similar as are the weight ratio of metallocene to support, it would be obvious that pore size is an inherent property of the silica support and the solubility of alumoxane in solution would more accurately determine the amount which is found in the pores of the silica support when dried which would be dependent upon temperature at which the reaction is carried out which is known in the art and it is also known to disperse catalyst components in an inert liquid carrier because it can be introduced into a reactor in a manner where it will not react with the reactor walls.

Claims 1-31 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-17 of **US 6,166,153**. Although the conflicting claims are not identical, they are not patentably distinct from each other because both patent and instant application claim a process for making a metallocene catalyst which is supported on silica where said support is treated with alumoxane and the metallocene catalyst has two cyclopentadienyl rings, capable of forming fluorenyl rings, said cyclopentadienyl rings

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can be the same or different, substituted or unsubstituted, bridged or non bridged, so that a different symmetry is assigned to each of the rings. The metal compound may be zirconium or any group IVB metal. Inert liquid carrier used is mineral oil.

Instant application claims silica particles are impregnated with alumoxane co-catalyst such that half of the alumoxane are inside the pore structure of the silica particles, that the temperature for impregnation and subsequent washing steps are at 10 °C or less, and that washed catalyst is dispersed in a viscous mineral oil. Furthermore silica particle size range is between 20-60 microns, weight ratio of alumoxane to silica is 0.6-2.0, weight ratio of metallocene to support ratio is 0.1-6.0 weight percent and pore diameter ranges between 200-400 Å.

It would have been obvious to one of ordinary skill in the art to have modified the catalyst preparation process as described in the patent such that the alumoxane contribution is determined as amount within the pore structure of silica because it is solubilized and would therefore be accessible to the pore structure of silica because the pores inherently would be open to accept liquid and considering the particle size range and weight ratio of alumoxane to silica are similar as are the weight ratio of metallocene to support, it would be obvious that pore size is an inherent property of the silica support and the solubility of alumoxane in solution would more accurately determine the amount which is found in the pores of the silica support when dried which would be dependent upon temperature at which the reaction is carried out which is known in the art.

Claims 1-31 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-20 of **US 5,968,864**. Although the

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conflicting claims are not identical, they are not patentably distinct from each other because both patent and instant application claim a process for making a metallocene catalyst which is supported on silica where said support is treated with alumoxane in a non polar solvent at a temperature of  $-20$  to  $0$  °C and the metallocene catalyst has two cyclopentadienyl rings, capable of forming indenyl rings, capable of forming fluorenyl rings, said cyclopentadienyl rings can be the same or different, substituted or unsubstituted, bridged or non bridged, so that a different symmetry is assigned to each of the rings. The metal compound may be zirconium or any group IVB metal in a non polar solvent. Silica used has a surface area in the range from 200 to 800  $\text{m}^2/\text{g}$  and average pore volume from 0.70 ml/g to 1.6 ml/g and average particle size from 15 to 38 microns.

Instant application claims silica particles are impregnated with alumoxane co-catalyst such that half of the alumoxane are inside the pore structure of the silica particles, that the temperature for impregnation and subsequent washing steps are at 10 °C or less, and that washed catalyst is dispersed in a viscous mineral oil. Furthermore silica particle size range is between 20-60 microns, weight ratio of alumoxane to silica is 0.6-2.0, weight ratio of metallocene to support ratio is 0.1-6.0 weight percent and pore diameter ranges between 200-400 Å.

It would have been obvious to one of ordinary skill in the art to have modified the catalyst preparation process as described in the patent such that the alumoxane contribution is determined as amount within the pore structure of silica because it is solubilized and would therefore be accessible to the pore structure of silica because the pores inherently would be open to accept liquid and considering the particle size range and weight ratio of alumoxane to silica are similar as are the weight ratio of metallocene to support, it would be obvious that pore



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size is an inherent property of the silica support and the solubility of alumoxane in solution would more accurately determine the amount which is found in the pores of the silica support when dried which would be dependent upon temperature at which the reaction is carried out which is known in the art.

Claims 1-31 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-16 of **US 6,432,860**. Although the conflicting claims are not identical, they are not patentably distinct from each other because both patent and instant application claim a process for making a metallocene catalyst which is supported on silica where said support is treated with alumoxane in a non polar solvent so that the support pores have residual co-catalyst within the pores where 50% of the alumoxane is within the pores will then contact with the metallocene catalyst which has two cyclopentadienyl rings in a stereorigid relationship to the transition metal and 90 weight % of the metallocene supported on the particulate support is contained within the pore volume of the support. Silica used has an average pore volume from 1.2 ml/g to 1.5 ml/g and average spheroidal particle size from 10 to 40 microns.

It would have been obvious to one of ordinary skill in the art to have modified the catalyst preparation process as described in the patent such that the alumoxane contribution is determined as amount within the pore structure of silica because it is solubilized and would therefore be accessible to the pore structure of silica because the pores inherently would be open to accept liquid and considering the particle size range and weight ratio of alumoxane to silica are similar as are the weight ratio of metallocene to support, it would be obvious that pore size is an inherent property of the silica support and the solubility of alumoxane in solution

would more accurately determine the amount which is found in the pores of the silica support when dried which would be dependent upon temperature at which the reaction is carried out which is known in the art.

Claims 1-31 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-34 of copending Application No. 09/782,753. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

Both applications are drawn to a process for the preparation of a supported metallocene catalyst where a particulate silica alumoxane support is mixed with a metallocene catalyst in an aromatic hydrocarbon solvent, mixed at a temperature of about 10 °C or less, recovering supported catalyst from solvent, washing in a paraffinic hydrocarbon solvent at a temperature of about 10 °C or less and dispersing washed catalyst in hydrocarbon solvent which is mineral oil. Both applications claim a supported catalyst value of no more than 50% by weight, mineral oil viscosity of at least 10 centistokes and paraffinic hydrocarbon solvent viscosity of no more than 2 centistokes, optional subsequent washing step, silica average particle size overlap between 20-50 microns, different stereospecificity between cyclopentadienyl structures, an identical syndiospecific metallocene formula having substituted or unsubstituted fluorenyl groups, metals which are titanium, zirconium, hafnium or vanadium, R'' is methylene, ethylene, organosilyl, substituted methylene or substituted ethylene radical, (Cp<sub>a</sub>R<sub>n</sub>) fluorenyl radical has bilateral symmetry and R' is selected such that (Cp<sub>b</sub>R'<sub>m</sub>) forms an alkyl substituted or unsubstituted cyclopentadienyl radical having bilateral symmetry, weight ratio alumoxane to silica overlaps from 0.6 to 1.5, both claim an isopropylidene (cyclopentadienyl-1,2,7-di-tert-butyl fluorenyl) ligand or a diphenyl methylene (cyclopentadienyl-1-fluorenyl) ligand, both claim an

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identical isospecific metallocene which is inherently stereorigid if there is a bridging ligand between the cyclopentadienyl ligands where the indenyl groups are substituted or unsubstituted at the proximal position and selected from racemic dimethylsilyl(2-methyl-4-phenyl indenyl)<sub>2</sub> zirconium dichloride, racemic dimethylsilyl(2-methyl-4-indenyl)<sub>2</sub> zirconium dichloride, and racemic dimethylsilyl(2-methyl-4,5-benzo indenyl)<sub>2</sub> zirconium dichloride and mixtures thereof.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennine M. Brown whose telephone number is (703) 305-0435. The examiner can normally be reached on M-F 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Bell can be reached on (703) 308-3823. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 879-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

jmb  
May 5, 2003

  
Mark L. Bell  
Supervisory Patent Examiner  
Technology Center 1700